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ABSTRACT

Accountability in higher education promotes measurable outcomes considered indicative of performance, productivity, and quality. One prominent measure in evaluating baccalaureate programs is the proportion of graduates continuing to the graduate level. This study combined a well-established follow-up program, which includes education enrollment data at all levels of in-state public institutions in Florida, with the EdEvaluator program of the National Student Clearinghouse, which captures approximately 91% of higher education enrollment nationwide, to track graduates continuing their education in other states or at instate private institutions. The study examined baccalaureate graduates' enrollment behaviors by comparing characteristics and patterns of students continuing their education in-state and out-of-state. Of the state's 34,964 baccalaureate graduates, 11,287 continued their education following graduation, and 7,222 of these continued their education in-state. Graduates from some engineering, life sciences, and physical sciences programs were more likely than those in most disciplines to continue their education out-of-state. (Contains 9 tables and 17 references.) (SLD)

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Pilot Use of National Student Clearinghouse EdEvaluator to Gain Postbaccalaureate Enrollment Data

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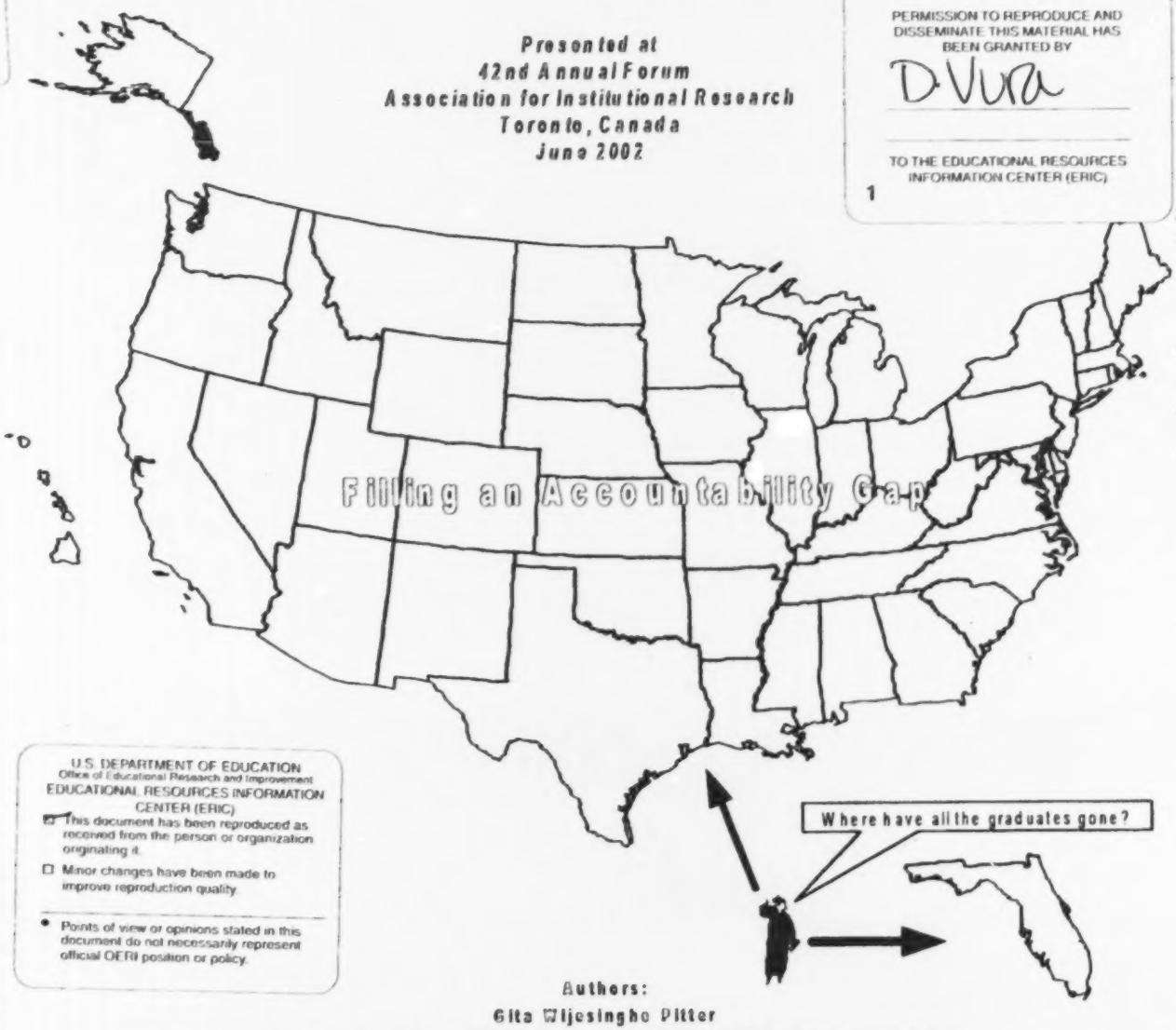

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Filling an Accountability Gap: Pilot Use of National Student Clearinghouse EdEvaluator to Gain Postbaccalaureate Enrollment Data

Abstract

Accountability in higher education promotes measurable outcomes considered indicative of performance, productivity, and quality. One prominent measure in evaluating baccalaureate programs is the proportion of graduates continuing to the graduate level. This study combines a well-established follow-up program, which includes education enrollment data at all levels of in-state public institutions, with the EdEvaluator program of the National Student Clearinghouse (NSC), to track graduates continuing their education in other states or at in-state private institutions. The study examines baccalaureate graduates' enrollment behaviors by comparing characteristics and patterns of students continuing their education in-state and out of state.

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Filling an Accountability Gap: Pilot Use of National Student Clearinghouse Ed Evaluator to Gain Postbaccalaureate Enrollment Data

Introduction

Accountability issues in higher education center on measurable outcomes that are considered to be indicative of the quality, performance and productivity of educational programs. One prominent measure in evaluating baccalaureate programs is the proportion of graduates continuing their education to the graduate level. The ability to obtain these data has depended largely on exit or follow-up surveys of graduates, requiring a great deal of effort and resources. A more efficient alternative is to utilize automated student enrollment databases to track the graduates.

Florida utilizes an interagency follow-up program, the Florida Education & Training Placement Information Program (FETPIP), to collect administrative data from the unemployment insurance wage database, federal employment databases (Office of Personnel Management, U.S. Postal Service and Department of Defense), student enrollment data from high school through doctorate, public assistance records (Temporary Assistance for Needy Families- TANF- and food stamps) and state prison incarcerations. The student enrollment data include all of public education and some private institutions within the state. The private institutions for which data are available through FETPIP are those whose resident students are eligible to receive the Florida Resident Access Grant (FRAG). FETPIP can determine which private independent college or university Florida resident students are attending, and for which term, by matching with the FRAG financial aid file. However, only Florida residents attending an independent college or university in Florida at the baccalaureate level are eligible for the FRAG, therefore FETPIP is able to provide a wealth of data on students remaining in Florida at

public institutions and limited data on private institutions. Incorporating data from the EdEvaluator program of the National Student Clearinghouse (NSC) is therefore critical to determine a more complete postbaccalaureate enrollment rate. Additionally, in the past one could only speculate that the graduates not found within the state may have left the state either for employment or for continuing their education. This year, utilizing the EdEvaluator program of NSC, which captures approximately 91% of higher education enrollment nationwide, the state is able for the first time to track graduates who are continuing their education in other states, as well as at most private in-state institutions. While some institutions in other states have utilized NSC to track their students (e.g., Porter, 1999), this study is the first to utilize Ed Evaluator for the entire state's public university system.

Purpose

The study was undertaken to develop a more complete understanding of the engagement of baccalaureate graduates in continuing their education, both within and outside the state. Postbaccalaureate enrollment behavior of graduates is of interest for several reasons. First, the proportion of baccalaureate graduates who continue on to graduate school is one indicator of the effectiveness and quality of undergraduate programs. States also have an interest in the proportion of graduates, both those who entered from out-of-state and those who are Florida residents, who remain in the state to continue their education. While institutions and departments have traditionally viewed with pride the acceptance of their graduates at prestigious out-of-state graduate schools as an indicator of the quality of baccalaureate graduates they produce, state policy makers and legislators tend to view out migration as a loss to the state. Combining data from the existing student follow up program operated by the state with the newly available capabilities of EdEvaluator will enhance the ability to assess the enrollment

behavior of baccalaureate graduates, in addition to high school and Associate of Arts graduates.

Significance of the Study

The enrollment behavior of baccalaureate graduates is of interest to higher education institutions as an accountability measure. The Florida legislature has identified the following as one of 25 accountability measures for public universities in the state: "Percent of undergraduate students enrolled in graduate school upon completion of the baccalaureate degree." Furthermore, a recent study reporting the results of the 2001 Higher Education Issues Survey affirms that state legislators overwhelmingly recognized the strategic role of higher education in contributing to economic development. One of the key contributions expected of higher education by lawmakers is the preparation of a high-skill, high-wage workforce (Ruppert, 2001). Implicit in this expectation is the interest in retaining this highly trained workforce within the state.

The issue of whether education is continued in-state or out-of-state is pertinent from several perspectives. From the perspective of state policy makers and business leaders, there is concern that the state may be losing graduates in fields that are of high need or important to state economic development. State legislators have identified a highly trained workforce as the single most important commodity necessary for the economy (Klas, 2000). From the perspective of academe, however, placing a graduate in a highly ranked program or prestigious institution out-of-state is considered an indicator of program quality. University administrators may hold a perspective, which falls between the two, being gratified that the baccalaureate graduates are sought after by out-of-state institutions; disappointed that they do not remain at the institution for their graduate work; and concerned that lawmakers will view the exodus of the graduates from the state in a negative light. Researching issues related to baccalaureate graduates continuing their education within the state or migrating to institutions outside the state utilizing the

databases to capture the entire population could serve to support or call into question findings of previous studies. The findings have implications for policies designed to influence student decisions to continue their education within or outside the state. This study illustrates the potential value of using statewide databases in conjunction with the EdEvaluator and NSC data for researching the postbaccalaureate enrollment behavior of students, and thus may serve to stimulate similar research in other states and institutions of higher education.

Data Sources

The study employed a well-established interagency follow-up program called the Florida Education and Training Placement Information Program (FETPIP), combined with the EdEvaluator program of the National Student Clearinghouse (NSC). FETPIP is administratively housed within the Bureau of Workforce Education and Outcomes Information Services in the Florida Department of Education. The program utilizes administrative data from the unemployment insurance (UI) wage database, federal employment databases, education enrollment at all levels, public assistance records, and state prison incarcerations. The component of interest in this study was FETPIP's data on postbaccalaureate enrollments. FETPIP is widely used in Florida to provide information for nearly all public education and training programs occurring in the State and much of private education and training.

The primary mission of NSC, a non-profit association founded by the higher education community, is "to serve as a central repository and single point of contact for the collection and timely exchange of accurate, comprehensive post-secondary enrollment status and related information"(NSLC, 2002). The NSC database was originally developed to help colleges and lenders to track students who receive loans. NSC now provides a number of services including DegreeVerify and EnrollmentSearch. NSC includes information on students (all students, not

solely those receiving loans) in over 2,700 colleges in the United States, which encompass 91% of the student enrollment in institutions of higher education. While EnrollmentSearch enables individual institutions to track their transfers or graduates, NSC's EdEvaluator enables state level institutions, such as state departments of education, to capture students or graduates from the entire state. Ed Evaluator identifies the name and FICE (Federal Interagency Commission on Education) number of the institution in which a selected student is enrolled in a given semester. In this study, the search for graduates through EdEvaluator was performed by matching social security numbers.

Utilizing FETPIP and Ed Evaluator, the researchers were able to identify which of the July 1, 1999- June 30, 2000 baccalaureate graduates from state universities in Florida enrolled in participating higher education institutions in the US during Fall 2000 or Spring 2001 following graduation. The graduates during this time period were tracked for postbaccalaureate enrollment information by requesting enrollment data for Fall 2000 and Spring 2001 utilizing NSC's EdEvaluator and FETPIP.

Methodology

The study examined the enrollment activities in Fall 2000 and Spring 2001 of the baccalaureate students graduating between July 1, 1999 and June 30, 2000 from the State University System (SUS) of Florida. A future study may break out the graduates term by term to determine if this methodology yields significantly different results which warrant the additional effort required to conduct a term-by-term study. Graduates who enrolled at all public and some private education institutions within the state following graduation were identified using the traditional FETPIP data sources. EdEvaluator was used to supplement this information by identifying graduates in institutions within the state not captured by the FETPIP sources, or who

have enrolled in an institution in another state. The NSC data supplied the fact of enrollment, the term, and what institution the student is attending. As a preliminary step, duplicated student records between the two sources were merged.

Research Questions

- What is the gain in information from combining NSC data with FETPIP sources?
- What proportion of students continue their education the year following baccalaureate graduation?
- What proportion of baccalaureate graduates continue their education in-state versus out-of-state?
- What are the demographic and academic characteristics of students who continue their postbaccalaureate education out-of-state, compared to those continuing their education within the state?
- Are there differences in postbaccalaureate enrollments by GPA, race and ethnicity, gender, age, and baccalaureate level discipline?
- Which states and out-of-state institutions attract the most graduates from the State University System (SUS)?
- In what types of institutions do graduates who continue their education enroll? (i.e., less than two-year, two-year, four-year or higher.)
- Are out-of-state students enrolled in the SUS more likely than in-state students to continue their education in other states following graduation?

Review of Literature

One of the key factors of interest in this study was the migration of students to educational institutions in other states following graduation with a baccalaureate degree. There are several studies of college student migration across the United States that focus on the migration patterns of either first-time students or all freshmen (NCES, 1998; SREB, 2001; WICHE, 1995). Concurrently, other studies address the migration rates of graduate students for selected programs (Tornatzky,L; Gray,D; Tarant, S; & Howe. J, 1998). Research for this paper

found both historical and current migration statistics for the State of Florida for the categories of both first-time and all freshmen; however, no current data for comprehensive postbaccalaureate graduate student migration to and from Florida was located.

An early study of college student migration conducted by Steahr and Schmid (1972) examined data collected by the United States Office of Education surveys from 1938, 1949, 1958 and 1968. The surveys were directed at students enrolled in institutions of higher education at the baccalaureate or higher levels. During the period covered by the surveys there was a steady increase in the number of students enrolled in colleges and universities outside their home state. However, the percentage of students attending institutions outside their home state decreased during the period examined. By 1968 only 16.8% of 6,545,363 students enrolled in institutions of higher education in the US were classified as out-of-state. Florida was one of the states experiencing net losses in migration of students enrolled in public and private institutions of higher education; i.e. more students whose home state was Florida went to other states to seek a college education than students from other states entering Florida to pursue higher education. The net loss to Florida reached -5,937 in 1968. These statistics placed Florida in the bottom percentiles when compared to other states, with rankings ranging from 42nd to 47th among the 50 states during the years examined.

More recently, data collected by the National Center for Education Statistics (NCES) reveal a trend toward a positive net gain of students for Florida's institutions of higher education in the 1990's. For example, a 1994 study of all freshmen students in 4-year colleges who graduated from high school within the past 12 months showed that out of a total of 27,526 students from Florida attending college in any state, 19, 007 of those students attended an institution in Florida, yielding a total of 8,519 out-migrants from Florida. In the same year,

Florida had 7,943 in-migrants for a negative net of –576 students (NCES, 1998). However, by 1996, a study using the same criteria as in 1994 revealed a net gain of 1,222 students for Florida, with 9,956 in-migrants and 8,734 out-migrants. When examining all first-time freshmen, 1996 also showed a net in-migration gain of 3, 935 students. Additionally, the percentage of students remaining in Florida, out of the total number of students from Florida enrolled in college anywhere, increased from 69% in 1994 to 83% in 1996. This statistic placed Florida right at the national average as an IPEDS study for the fall of 1996 revealed that nationwide a ratio of 17.1% of freshmen (380,000 out of 2.22 million total) migrated between states (NCES, 1998b).

Recent data from NCES indicate that Florida continues to be a net importer at least in regard to first time freshmen, realizing a net gain (number of first-time freshmen entering the state to attend college minus those leaving the state to attend college) of 13,504. While the previously mentioned Steahr and Schmid study examined all students enrolled at the baccalaureate level and higher, the NCES data for 1998 reflect only first-time freshmen; therefore the population in the two studies are not comparable. However, it does appear that Florida has reversed its trend of net migration losses. In fact, the Southern Regional Education Board (SREB) Fact Book on Higher Education (2000/2001) places Florida in the highest category of "net importers" among southern states, with gains of more than 3,000 students in 1998.

The issue of student migration and related policy issues was the subject of a Policy Insights publication by the Western Interstate Commission for Higher Education (WICHE) which identified the following policy areas affecting student migration: tuition, financial aid packaging, enrollment caps, recruitment practices, residency requirements, specialized academic programs or limited institutional capacity and interstate agreements. The study also identified

key policy questions regarding student migration and policies affecting migration that may be changed to stimulate desired outcomes (WICHE, 1995).

A study of students from US universities who earned their doctorates between 1998 and 1999 included an examination of interstate migration from birth to initial postgraduate location (Sanderson, A.; Dugoni, B.; Hoffer, T.; and Myers, S., 1999). The study, which utilized the annual Survey of Earned Doctorates, found that about 13% of doctoral recipients were born, graduated from high schools, entered college, received a doctorate and planned to work in the same state. The majority of US doctoral recipients (68.8%) received a doctorate from an institution in a state other than the one in which they first went to college. Less than half (44.8%) of the recipients intended to remain and work in the state in which they earned their doctorate. Only 28.3% intended to return to or remain in the state in which they went to college, 29.2% intended to return to the state in which they attended high school, and less than a quarter (24%) intended to return to or remain in their birth state. The researchers concluded that there was no single point in the academic completion range of points during which "brain drain" or "brain gain" occurred; migration tended to be a continuous process. In terms of student characteristics, women and men were equally likely to attend a college in a state other than the one where they completed high school. Men were slightly more likely to work in a state other than the state in which they earned their doctorate, and less likely to return to their "roots", i.e. the state where they were born, attended high school or first went to college. Students in the physical sciences and the humanities were found to be the ones most likely to migrate. The lowest migration rates between first entering college and receiving a doctorate were for graduates from the fields of education (60.6% moved), engineering (67.2%) and psychology (68.7%).

The determinants of matriculation at the undergraduate and graduate levels were examined in a study by Stolzenberg (1994). The study revealed that while parent socioeconomic status (SES) was a powerful determinant of entry into undergraduate education, it has a weak or no effect on continuation to graduate school. Student aspirations were found to be the strongest predictor of continuing education into the graduate level, and parent SES had little relationship to level of aspiration. The researcher surmised that aspirations for graduate education are formed or reformed during undergraduate education, with little parental influence. SAT scores and college grades were found to have a small effect on the likelihood of students attending graduate school.

A report of the Southern Growth Policies Board, "Where have all the students gone? (Tornatzky, et. al., 1998) examined the interstate migration of science and engineering graduates. The study found that Florida was not one of the high retention (retained a high proportion of graduates within the state) or high migration (high net gain of interstate migration) states beyond the high school level, performing about average in both categories. The study found the following factors to be positively correlated with retention of graduates within the state: geographic factors such as larger more populous states and states with less commuting patterns to neighboring states; and low in-state tuition. Factors associated with positive net migration of science and engineering graduates into the state included state economic indicators such as high wages, particularly in the technology sector; and low in-state and out-of-state tuition. The study recommends that states accelerate the development of high-wage technology-based economies to retain their own best students and attract highly skilled individuals from other states, and consider lowering or stabilizing tuition and providing financial assistance to students entering science and engineering disciplines.

Two recent surveys suggest that graduates of research-intensive universities, historically black colleges and universities (HBCUs), those majoring in engineering or physical sciences, or having a higher than average grade point average were less likely to remain in-state upon graduation (Leadership Florida and Nova Southeastern University, 2001; Tornatzky, L; Gray, D.; Tarant, S.; Zimmer, C., 2000). Studies of student retention, such as those by Porter (1999, 2001), suggest that a human capital model provides a useful framework for predicting student persistence behavior, and that academic ability impacts student decisions to persist in seeking a degree while residency status affects transfer decisions. Porter's study on student retention is also of interest in the present study because of its utilization of the National Student Loan Clearinghouse (NSLC) Enrollment Search data to examine transfer behavior of undergraduate students. Porter's study concluded that combining NSLC Enrollment Search data with internal databases at an institution offered an alternative to the traditional approach to retention by taking transfer-out behavior into account.

Analysis of Data

This study examined the continuing education enrollment behavior of the baccalaureate graduates of 1999-2000 from the state universities of Florida. The total population of baccalaureate graduates consisted of 34,964 students. Through a combination of FETPIP and NSC data, 11,287 (32%) of the graduates were found continuing their education either in Florida or in another state the year following graduation. FETPIP alone found 7,222 students continuing their education in-state. Since FETPIP is limited to state institutions and some participating private institutions of higher education in Florida, this represented most, but not all of the 10,171 graduates of 1999-2000 who chose to continue their education in Florida. Prior to the availability of NSC data through EdEvaluator beginning in 2001, no information regarding the

unidentified students who continued their education either within or outside of Florida was available to the Florida Board of Education. The NSC data provided information on 4,065 graduates not captured through the FETPIP data, contributing information on 36% of the 11,287 found continuing their education within or outside of the state. Another 4,172 graduates located through NSC were also located through FETPIP. FETPIP located 3050 graduates in Florida not found by NSC, primarily because not all Florida institutions participate in NSC. By combining the two data sources it was possible to obtain a much more complete picture of the postbaccalaureate enrollment behavior of graduates. In fact, although FETPIP located 21% of the baccalaureate graduates continuing their education (7,222 students), NSC was able to add an additional 11% (4,065 students) to this total, resulting in a 56% increase in students found continuing their education at the postbaccalaureate level.

Table 1: Enrollments found by database

	FETPIP total	FETPIP only	NSC total	NSC only	Both NSC & FETPIP	Total
Continuing In-state	7222*	3050	7121*	2949	4172	**10, 171**
Continuing Out-of-state			1116	(1116)		**1,116**
Total	**7222***	**3050**	**8237***	**4065**	**4172**	**11,287**

* These totals include overlapping counts from both FETPIP and NSC and therefore do not add into the row totals.

Graduates Found in Florida

FETPIP also captures graduates who are employed in Florida or employed by the federal government throughout the United States. Of the 34,964 baccalaureate graduates in 1999-2000, 22, 495 (64%) were found employed in the state. Of the 11,287 students found continuing their education, 6,893, or 61%, were also found employed in Florida during the fourth quarter (October-December) of 2000. Among these individuals employed in Florida and also continuing

their education, 130 of them were enrolled in out-of state institutions, ranging from the neighboring states of Georgia and Alabama to New York, California and the Virgin Islands. There are several possible reasons for these 130 students being identified as both employed in Florida and continuing their education in another state; i.e. individuals may be employed in Florida counties bordering on Georgia and Alabama, who commute to institutions in those neighboring states; students may be engaged in distance learning from more distant states; students may be enrolled but not attending the out-of-state institutions; or students may have attended out-of-state institutions in early Fall 2000 but dropped out and returned to employment in Florida.

The total number of graduates found through FETPIP (employed or continuing education in Florida) or found by NSC (both in-state and out-of-state) was 26,797, or 77% of the graduating class. Seventy-three percent of the graduating class was found in Florida, either working or continuing their education. When the data were broken out by initial residency, 76% of the graduates who were classified as Florida residents at the time of initial enrollment, and 46% of the graduates who were classified as non-Florida residents at the time of initial enrollment were found in Florida. Interestingly, 48% of graduates who were non-US residents were found either employed or continuing their education in Florida—a higher percent than for US residents who were not Florida residents at initial enrollment. This runs counter to the popular perception that non-US students do not remain in the state once they graduate. An earlier study of 1998-99 baccalaureate graduates (Whitfield, Pitter and Howat, 2001), which did not have the benefit of the NSC data, had found a similar percentage of Florida residents remaining in the state (73%). However, analysis of the 1998-99 graduates had found a higher percent of non-Florida residents remaining in Florida (55%) than found in the current study. Apparently the percent of graduates who were non-Florida residents at time of initial enrollment, who remain in the state, can shift dramatically from one year to the next. Further study would need to be done to determine possible causes of the shift.

In-State vs. Out-of-State

The utilization of NSC data in combination with FETPIP data added an important component to the understanding of student migration to continue their education after the baccalaureate. Based on FETPIP data alone, it had been speculated previously that a considerable portion of graduates were continuing their education out-of-state. However, as Table 2 indicates, 90% of those continuing their education were doing so in Florida. The NSC data had captured not only students leaving the state but also 29% of the students continuing their education in Florida at various private institutions not captured through FETPIP, as well as identifying some additional enrollment data from state institutions included in FETPIP. Further research should be conducted to determine why NSC captured students not captured by FETPIP in state institutions in Florida, since all students in such institutions are supposed to be included in FETPIP. However, FETPIP does not include summer enrollment, which may account for the NSC unique finds in state institutions

Table 2: Postbaccalaureate Enrollment: In-state versus out-of-state

	Number	Percent
Continuing in Florida	10, 171	90%
Continuing outside Florida	1,116	10%
Total	11, 287	100%

Of the 34,964 baccalaureate graduates in 1999-2000, 32% or 11,287 were found continuing their education. Of those found continuing, 10,171 students (29% of the total graduates) were continuing their education in Florida, while 1116 students (3% of the total graduates) were continuing their education out-of-state. In comparison, 77% of the 23,695 Associate of Arts graduates in 1999-2000 were found continuing their education, with 74% of the total graduates remaining in Florida and 3% of the total graduates going out-of-state to continue their education. The Associate of Arts is the transfer degree consisting of the first two years of a baccalaureate. Associate of Arts students complete the two- year degree at a community college and are expected to transfer to a four-year college or university to complete

the baccalaureate. At the high school graduation level, 63% of the high school graduates of 1999-2000 were found continuing their education. Fifty-nine percent of the total high school graduates were found continuing their education in Florida and 4% were found continuing their education out-of-state. At all levels of education it appears that the vast majority of graduates who continue their education do so within the state (see Appendix A for maps of destination of graduates continuing their education).

Florida Residents vs. Non-residents

Are out-of state students enrolled in the state universities more likely than in-state students to continue their education in other states following baccalaureate graduation? Policy-makers are often reluctant to permit admission of out-of-state students into state universities in the belief that they are likely to leave the state upon graduation, thus providing no benefit to the state from the education provided to them. Florida, therefore, has a policy limiting admission of non-state residents to 10% of the total enrollment. Of the graduating class of 34,964, roughly 10% had been classified as non-Florida residents at the time of initial admission. Of these non-Florida residents who continued their education after receiving a baccalaureate, 73% of them did so in Florida. In comparison, 92% of the graduates who had been classified as Florida residents upon initial admission continued their education within Florida. While it is true that non-Florida residents continued their education in Florida at a lower rate than Florida residents, the rates of both groups for continuing their education in Florida were high.

Table 2: Florida Resident Postbaccalaureate Enrollment Patterns

	Number	Percent
Florida resident at time of admission	31, 328	90%
Florida residents continuing education	10,294	33%
Florida residents continuing in-state	9,443	92%
Florida residents continuing out-of-state	851	8%

Table 3: Non-Resident Postbaccalaureate Enrollment Patterns

	Number	Percent
Non-Floridians at time of admission	3636	10%
Non-Floridians continuing education	993	27%
Non-Floridians continuing education in Florida	728	73%
Non-Floridians continuing education outside Florida	265	27%

At the graduate level, is Florida a "net importer" or a "net exporter?" In Fall 2000, there were 3,201 students from out-of-state enrolled in graduate school in state universities in Florida. Of this number 1,688 were students from other countries, while 1,513 were US residents. In comparison, as noted earlier, 1,116 of the total baccalaureate graduates from Florida's state universities entered out-of-state institutions to continue their education. Although the latter number does not represent the total of all Floridians entering graduate schools in other states, it appears that Florida is a "net importer" at the graduate level, as well as the undergraduate level (the latter being borne out by NCES and SREB data).

The top ten states or territories which tend to attract Florida graduates who continue their education are, in descending order: New York, Georgia, Alabama, California, Virgin Islands, North Carolina, District of Columbia, Illinois, Pennsylvania, and Virginia. Proximity, reputation of higher education in the state, and the social and employment opportunities offered in New York may be factors in their selection. It is interesting to note that the states from which Florida attracts the most students are New York, Georgia, New Jersey, Virginia, Pennsylvania, and Illinois. The 55 students continuing their education in the Virgin Islands was a surprisingly high number. They were attending St. Thomas of Villanova (primarily the law school of the institution) in the Virgin Islands and the majority were residents of Dade and Broward counties in South Florida. The out-of-state institutions enrolling the most baccalaureate graduates from Florida's public universities were, beginning with the highest: St. Thomas of Villanova in the Virgin Islands, Troy State University, New York University, Georgia Institute of Technology,

Georgia State University, Boston University, University of North Carolina Chapel Hill, University of Georgia, American University, Emory University, Asbury Theological Seminary, North Carolina State University, and Howard University.

Institution Awarding Baccalaureate

This study examines the pattern of postbaccalaureate enrollment by Florida public university granting the baccalaureate. While the percent of Florida public university graduates continuing their education ranged between 23% and 37% for most institutions, one university (University of North Florida, located in Jacksonville) had 53% of their baccalaureate graduates continuing their education. Although University of North Florida (UNF) is one of the smaller public universities in total enrollment, and is a comprehensive university with some master's programs and one doctoral program, its baccalaureate graduates tended to continue their education at the same institution to a greater degree than graduates of most of the other Florida public universities. The only other Florida public university at which baccalaureate graduates continued their education at the same institution at a noticeably higher rate than average was Florida Gulf Coast University, the state's newest and smallest institution. The universities with the lowest percentage of their baccalaureate graduates continuing their education at the same institution were Florida A & M University (FAMU), University of Florida (UF) and Florida State University (FSU). These three institutions, more than the others, tend to draw students from many locations throughout the state and the United States. FAMU is an Historically Black College and University (HBCU), and UF and FSU are research-intensive institutions. Their graduates may be more mobile and also more sought after by other institutions.

Type of Institution

The NSC data do not identify the degree or major pursued. They do, however, identify the type of institution as four-year, two-year or less than two-year. FETPIP data also contain this capability. Utilizing these two sources, the following breakdown was constructed classifying the type of institution in which graduates enrolled for continuing their education.

Table 5: Postbaccalaureate Enrollment by Institution Type

	4year or >	%	2 year	%	< 2 year	%	Total
Continue in-state	8715		1266		190		10,171
Continue out-of-state	991		113		12		1,116
Total cont ed	9706	86%	1379	12%	202	02%	11,287

While the vast majority of students (86%) were in four-year or higher institutions, 1,379 students (12%) were enrolled in two-year institutions, mostly within the state. An earlier study by Windham and Perkins (2001) had examined the phenomenon of baccalaureate graduates enrolling in community colleges and found that they enrolled in course work primarily in criminal justice, natural sciences, health science and computer related areas. Those researchers found that most baccalaureate graduates who took courses at community colleges were not awarded a certificate or degree by the community colleges, indicating that they probably took the courses for personal or professional development rather than to seek another credential. The authors conclude that individuals with baccalaureates entering community colleges are probably seeking to acquire skills required in a changing employment marketplace.

Student characteristics

An issue of interest is whether students with certain characteristics are more likely than others to pursue their education beyond a baccalaureate degree and whether they are more likely to go out-of-state in order to do so. Females appear slightly more likely than males to continue their education (34% compared to 30%). It is noteworthy that females now not only are more likely to pursue undergraduate education (as indicated by previous studies) but also postbaccalaureate graduate education. Females and males appear equally likely to remain in the state to continue their education.

Table 6: Postbaccalaureate Enrollment by Gender

	Total Graduates		Total Continuing		Continuing in Florida		Continuing Out-of-State	
	#	%	#	%	#	%	#	%
Male	14,471	59%	4387	30%	3891	89%	496	11%
Female	20,491	41%	6900	34%	6280	91%	620	9%

Age appears to be associated with postbaccalaureate continuing education enrollment. The birth years of graduates ranged from 1915 to 1982. The 486 graduates born in 1979 – those 20 years old in 1999 - continued their education after graduation at the rate of 52%. The 5103 graduates born in 1978 (21 years old in 1999) continued their education at a rate of 42%. These students completed the baccalaureate at younger ages than the norm for students entering college directly after high school; i.e., those entering college when they are 18 years of age generally graduate when they are about 22 years of age at the earliest. Many students now require five years or longer to obtain the baccalaureate degree. It is likely that the graduates who were born in 1978 or later were those who had accelerated through high school and college. These students who accelerate are considerably more likely than the average graduate to continue their education (52% for those born in 1979, compared to the average of 32%).

Graduates who were born in 1976 or later continued their postbaccalaureate education at a rate of 34%, while those born in 1975 or earlier continued their education at a rate of 30%. Eighty-eight percent of those born in 1976 or later, who continued their education, did so in Florida. In comparison, 93% of those born in 1975 or earlier, who continued their education, did so in Florida. The data indicate that the younger graduates are more likely than older graduates to continue their education directly after receiving a baccalaureate, but they are also slightly more likely to leave the state in order to continue their education.

There were no significant differences by race in the percentage continuing their postbaccalaureate education. American Indians had the highest percentage continuing their education (39%) followed closely by Blacks (35%), Asians (34%), Hispanics (32%) and Whites (32%). American Indian graduates were also the most likely to continue their education in-state (93% of those continuing their education remained in Florida). The lowest percent continuing education in-state were Black graduates; however, they too remained in Florida at a high percentage (87%). These data revealed little difference by race for in-state postbaccalaureate enrollment rates.

Table 7: Postbaccalaureate Enrollment by Race/Ethnicity

Race/Ethnicity	Number of Baccalaureate graduates	Percentage (Total 34, 964)	Number continuing education	Percentage Continuing education	Continuing education in Florida	Percentage Continuing in Florida	Continuing education out-of-state
Asian	1,491	4.3%	514	34%	472	92%	42
Black	4,163	11.9%	1445	35%	1252	87%	193
Hispanic	4,645	13.3%	1470	32%	1328	90%	142
American Indian	119	0.3%	46	39%	43	93%	3
Non Resident Alien	1,119	3.2%	219	20%	197	90%	22
White	23,344	66.8%	7563	32%	6852	91%	711
No Indication	83	0.2%	30	36%	27	90%	3
Total	34,964	100%	11,287		10,171		1116

Do high-achieving students tend to continue their postbaccalaureate education at higher rates than others? An examination of the graduates who had been identified as National Merit Scholar, National Achievement Scholar, or National Hispanic Scholar recipient, finalist, or semi-finalist when they entered their baccalaureate programs revealed that, in general, they continued their education following the baccalaureate at a higher rate than that for all baccalaureate graduates. Forty-two percent of the former merit scholars were found continuing their education, compared to 32% of all graduates. The percent of former merit scholars continuing their postbaccalaureate education may in fact be even higher, because a closer examination reveals that National Merit Finalists and Semi-Finalists, and National Hispanic Scholarship recipients were found continuing their education at relatively low rates. It is possible that they attended some of the institutions not captured in the NSC data. Merit scholars were not only more likely than others to continue their education, but also more likely to leave the state to do so. Thirty-three percent of the merit scholars, compared to just 10% of all graduates found continuing their education, were enrolled in out-of-state institutions.

Table 8: Merit Scholars

Type of Scholar	Not found Continuing	Continuing in Florida	Continuing Out-of-State	Total
Nat'l Merit Scholar Recipient	131	67	27	225
Nat'l Achievement Scholar Recipient	31	16	12	59
Nat'l Merit Scholar Finalist	10	1	2	13
Nat'l Achievement Scholar Finalist	9	4	5	18
Type of Scholar	**Not found**	**Continuing**	**Continuing**	**Total**

	Continuing	in Florida	Out-of-State	
National Merit Scholar Semi-Finalist	6	2	0	8
Nat'l Achievement Scholar Semi-Finalist	4	5	1	10
Nat'l Hispanic Scholar Recipient	16	4	3	23
Nat'l Hispanic Scholar Finalist	3	4	1	8
Nat'l Hispanic Scholar Semi-Finalist	1	1	0	2
Total	**211**	**104**	**51**	**366**
	58%	**67%**	**33%**	

Another indicator of high achievement, baccalaureate grade point average (GPA) was also found to be associated with greater likelihood of postbaccalaureate enrollment. The mean GPA of those found continuing their education was 3.24, while the mean GPA of those not found continuing their education was 3.08. Those who left the state to continue their education tended to have a higher GPA than those who remained in Florida to continue their education (3.57 GPA compared to 3.23 GPA, respectively).

Baccalaureate Majors

The baccalaureate degree programs from which the students graduated were identified through FETPIP utilizing the Florida SUS database. The programs in which the graduates continued their education could not be analyzed since NSC does not provide this data. Using the two-digit CIP (Classification of Instructional Program) code level to identify the baccalaureate disciplines from which students graduated, Table 9 displays the 20 highest producing disciplines and the percentage of the graduates in each discipline found continuing their education. The table also identifies the percentage of those continuing their education who remained in Florida and the percentage of those who went out of state to continue their education.

Table 9: Postbaccalaureate enrollment by top 20 programs of degrees awarded to all 99/00 baccalaureates by two-digit CIP discipline

Two-digit CIP	Discipline	Total Grads	Percent of Grads	Cumulative Percent	Total Con't Ed	% Con't Ed	Continue in Florida	% Con't in Florida
52	Business Management and Administrative Services	7989	22.8%	22.8	1914	24.0%	1802	94.1%
13	Education	4048	11.6%	34.4	1359	33.6%	1308	96.2%
45	Social Sciences and History	2908	8.3%	42.7	1064	36.6%	910	85.5%
51	Health Professions and Related Sciences	2902	8.3%	51.0	1195	41.2%	1121	93.8%
42	Psychology	2205	6.3%	57.4	935	42.4%	795	85.0%
14	Engineering	2021	5.8%	63.1	572	28.3%	482	84.3%
09	Communications	1973	5.6%	68.8	404	20.5%	363	89.9%
43	Protective Services	1422	4.1%	72.8	556	39.1%	519	93.3%
23	English Language and Literature/Letters	1336	3.8%	76.7	448	33.5%	393	87.7%
26	Biology Sciences/Life Sciences	1262	3.6%	80.3	565	44.8%	472	83.5%
50	Visual and Performing Arts	1140	3.3%	83.5	296	26.0%	253	85.5%
11	Computer and Information Sciences	985	2.8%	86.3	229	23.2%	214	93.4%
24	Liberal Arts and Sci, Gen. Studies and Humanities	724	2.1%	88.4	249	34.4%	205	82.3%
44	Public Administration and Services	662	1.9%	90.3	302	45.6%	291	96.4%
19	Home Economics	444	1.3%	91.6	137	30.9%	122	89.1%
31	Parks, Recreation, Leisure and Fitness Studies	422	1.2%	92.8	133	31.5%	120	90.2%
40	Physical Sciences	342	1.0%	93.8	152	44.4	113	74.3%
02	Agricultural Sciences	329	.9%	94.7	152	46.2%	133	87.5%
15	Engineering Related Technologies	297	.8%	95.6	54	18.2%	51	94.4%
03	Conservation and Renewable Natural Resources	249	.7%	96.3	82	32.9%	71	86.6%

The top 10 disciplines, headed by business management and administrative services, and followed by education, social sciences, health professions, psychology, engineering,

communications, protective services, English and life sciences, produced 80% of the graduates. The disciplines, at the two-digit CIP level, whose graduates had relatively high rates of continuing their education were agricultural sciences (46.2%), public administration (45.6%), life sciences (44.8%)physical sciences (42.4%) and health professions (41.2%). In most of these disciplines, there is an increasing expectation in the profession that master's degrees (public administration and health professions) or doctoral degrees (life sciences and physical sciences) provide the entry-level competencies into the profession. The disciplines, at the two-digit CIP level, whose graduates had relatively low rates of continuing their education were engineering technologies (18.2%), communications (20.5%), computer and information sciences (23.2%), business (24.0%), visual and performing arts (26.0%) and engineering (28.3%). Graduates of disciplines leading to relatively well-paying employment at the baccalaureate level, such as computer science and engineering and business, may choose employment over continuing their education because they perceive the prospect of immediate employment in a lucrative field to be more compelling than investing more time in education for later rewards which may not be significantly greater. In a field such as visual and performing arts, which generally does not lead to lucrative employment, graduates may perceive that talent, rather than continuing education, will be the determining factor in employment.

Of those continuing their education, a high percentage in all disciplines chose to do so in Florida institutions. In particular, public administration, business management, engineering technology and education graduates tended to remain in Florida to continue their education. Some two-digit disciplines which are of particular interest to the state as it moves toward a more high-tech economy, however, had lower rates of postbaccalaureate enrollment in Florida than other disciplines. Among such disciplines with lower rates were graduates of physical sciences (74.3%), life sciences (83.5%), and engineering (84.3%).

A more in-depth look at graduates of programs at the six-digit CIP level, leaving the state to continue their education, revealed that baccalaureate graduates from chemical engineering (37.9%), physics (34.5%), industrial/manufacturing engineering (32%), mechanical engineering

(25.9%) and chemistry (24.5%) tended to continue their education out-of-state at higher percentages than those in other programs. Baccalaureate graduates from teacher education programs, on the other hand, tended to remain in Florida to continue their education (95% to 100% of those continuing their education did so in Florida).

Conclusion

The use of NSC's EdEvaluator was an important data source to supplement the state's FETPIP data. It enabled the researchers to track 36% of the 11, 287 baccalaureate graduates found continuing their education, which were not captured through FETPIP alone. Overall, 32.3% of the 34,964 baccalaureate graduates were found continuing their education either within Florida or in other states and U.S territories. Florida graduates tend to remain in Florida to continue their education; 90% of those who continue their education immediately after baccalaureate graduation do so in Florida. A high percentage of students who were non-Florida residents at the time of initial enrollment in the baccalaureate programs also continued their education in Florida; 73% of original non-residents who continued their education did so in Florida. Florida's relatively low in-state tuition rates are probably a major factor in convincing students to remain in the state in order to continue their education.

FETPIP found 64% of the total 99/00 baccalaureate graduates employed in Florida, with 65% of those graduates who did not continue their education employed in Florida. Of those continuing their postbaccalaureate education, 6, 893 or 61% were employed in Florida. Of the total 3,636 students who had been classified as non-Florida residents at the time of initial enrollment, only 1,316 or 36% were found employed in the state upon graduation. In addition, only 35% or 926 of the 2,643 non-Florida residents at the time of initial enrollment who did not continue their education were found employed in Florida.

Graduates from some engineering programs, life sciences and physical sciences were more likely than those in most other disciplines to continue their education out of state. However, even in these disciplines the percent continuing their education in Florida was over 70%. Graduates who were merit scholars, had high baccalaureate GPA's, or were younger, were

more likely to continue their education but also tended to do so out of state at higher rates than other students. Students who had accelerated their education and graduated by age 20 were much more likely than others to continue their postbaccalaureate education (52% compared to 32%). Graduates of different racial and ethnic groups tended to continue their education at relatively equal rates. Women tended to continue their education after the baccalaureate at a slightly higher percentage than men (34% compared to 30%, respectively).

This study provides the first snapshot of postbaccalaureate enrollment data for an entire state system's baccalaureate graduates, including both in-state and out-of-state institutions. The findings should serve to inform policymakers on issues such as tuition rates, quality of graduate education, workforce needs and economic development. It appears that the state's low tuition rates may be a major factor in encouraging a very high percent of those continuing their education after the baccalaureate to remain in Florida. However, the lower rates of enrollment within the state among high-achieving students and some science and engineering programs, coupled with findings from earlier studies that lower percentages of students in science and engineering programs are found employed in Florida, merit consideration of financial incentives to retain high achievers and students in targeted programs at the graduate level, outreach efforts to retain the students for both employment and postbaccalaureate continuing education, and accelerating the development of the high-tech, high wage employment of graduates.

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